
FIRE REGIMES AND PLANT COMMUNITY PROCESSES IN LONGLeAF PINE GROUNDcover

FIRE AND RESTORATION, THURSDAY, 4:00PM - 5:45PM

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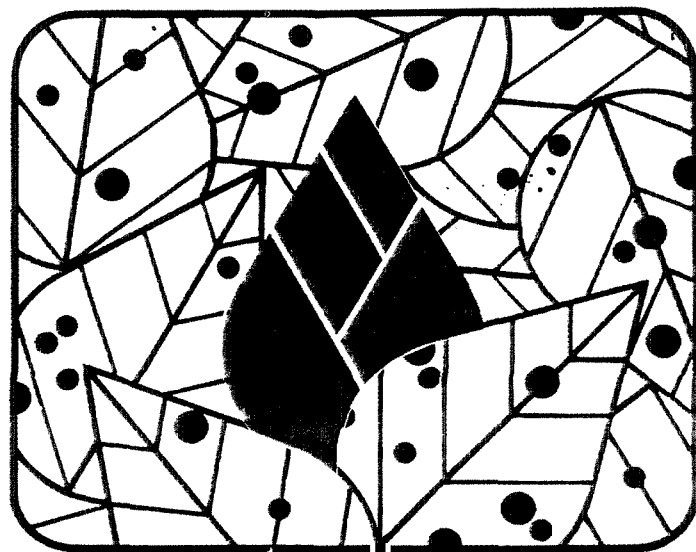
Most longleaf pine sites have been degraded to some extent by reduced fire frequency and other anthropogenic effects (e.g. soil disturbance). However, most of these sites also contain significant remnants of the original groundcover vegetation. The task of the restorationist in these sites is to reintroduce the missing species and enhance the reduced species while at the same time conserving the persistent species. This is a delicate task which is best approached in a delicate manner, at least at first.

Prescribed fire and seed/seedling introductions represent two methods for delicately manipulating the composition of longleaf groundcover vegetation. We have been studying the first of these factors for many years in three long-term studies encompassing two regions and a range of habitat types. More recently, we have begun nested studies within the long-term studies to test for effects of fire regimes on: 1) plant introductions; and, 2) recovery processes in small-scale disturbances. Some conclusions of these studies are as follows: (a) Frequent fire is critical to maintaining diversity of longleaf pine groundcover (*no surprise*). (b) Frequent fire reduces competition from established plants but does not eliminate them; this provides opportunities for the establishment of new species without any detrimental impacts on biodiversity as a whole. Growing season burns may be more effective at limiting competition than dormant season burns. (c) The effectiveness of seed introductions varies among species and habitats, consistent with theoretical predictions, there is a higher probability of introducing dominant bunchgrasses than forbs, except into disturbances. Establishment from seed, even of dominant grasses, is strongly habitat dependent. It appears that successful seedling establishment on dry ridge or sandhill habitats is very uncommon. On these sites much of the initial process of vegetation recovery after locally intensive disturbance involves clonal expansion. In contrast, moist sites with higher clay content in the surface soil appear to be the most favorable for seedling establishment. (d) Regardless of habitat, outplanting

seedlings appears generally to be more effective than introducing seeds for establishing populations of new species. However, seed introductions provide the possibility of selection for superior genotypes.

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